California Monthly Climate Summary
February 2014

Weather Highlights

February 2014 was a warm and average precipitation month for California. According to the Western Region Climate Center's California Climate Tracker, the monthly average temperature was 48.4°F which is 4.0°F higher than the long-term average of 44.4°F. With a statewide average of 3.86 inches, precipitation in February was 105% of average. This is the first above average month of precipitation in the California for Water Year 2014. Regional maximum and minimum temperature and precipitation plots for the December through February time period are shown at the end of the document. Normally this is the wettest time of year for California, but water year 2014 was well below average with the fifth driest precipitation total in 119 years of record.

February started with the beginning of the end for the monster high pressure system that dominated California weather the previous month. The breakdown of this ridge finally opened the storm door and in the second week, a short-duration, narrow atmospheric river event moved over the north end of San Francisco Bay into the Sierra over the American, Yuba, and Feather Rivers. Localized flooding was reported in Chico from this event and storage in Folsom reservoir jumped more than 10 feet. While high pressure built in behind this event, onshore flow returned for many parts of the State as the ridge could not entrench itself. The third week saw a series of small weather disturbances move over the state. The month closed out with a second strong storm that extended across the entire state bringing periods of heavy precipitation to many locations.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 107 temperature records tied or broken and 11 precipitation records tied for the month. Of the 107 temperature records set, 75 were for new high maximum temperatures and 31 were for new high minimum temperatures. Records were set over 22 days of the month. On February 19th, Needles set a new high temperature record of 90°F breaking the old record of 86°F set back in 1930. This is also the earliest 90°F reading for Needles beating the previous mark in 1904 of February 24th. The Sandberg climate station in northwestern Los Angeles County at elevation 4521 feet recorded 7 days with a high temperature above 70°F. The previous record total for February was 4 days set back in 1963. Four of the five highest average daily temperatures for February for Sandberg were set from February 12th through the 15th. The all-time record high temperature for February for Barstow-Daggett California was set on the 14th with a reading of 88°F. The previous record was 87°Fset on February 26th, 1986. Lancaster and Palmdale both tied the record for number of consecutive days above 80°F with four. The previous records were set in 1986. On February 27th, Bishop set a new daily precipitation record with 0.71 inches. The previous record was 0.51 inches set in 2006. The 0.71 inches was the most rain that had fallen in Bishop since January 23, 2012 when 0.60 inches of rain fell.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 201 stations recorded a minimum temperature below freezing in February while zero stations reached or exceeded 100°F at least once during the month. Statewide extremes from the CDEC network of temperature gages are shown below. Also shown are the monthly average extremes from the CIMIS network. A table of regional average minimum, mean, and maximum temperatures from the CDEC stations is also shown at the end of the summary.

Precipitation in February ranged from above average in the north to below average in the southeastern part of the State. For the CDEC precipitation gages for February 2014, the largest amount of precipitation recorded was at Lagunitas Lake in the San Francisco Bay region with 21.34 inches. This is 246% of the average precipitation for this station for February. At the other end of the spectrum, Twentynine Palms in the Colorado River Desert recorded no precipitation for the month. For the CIMIS network, Windsor in Sonoma County topped the precipitation charts with 12.42 inches for the month and 15 stations recorded no precipitation. Some CIMIS gages may show large precipitation totals if the gages are not covered during irrigation activities so care should be given to review precipitation data used from this network.

The 8-Station Index for northern California precipitation recorded 10.7 inches in February. On average, 8.0 inches of precipitation is recorded for the 8-Station index for the month. Statewide, the average precipitation for the month was 120% of the long-term average based on the California Data Exchange Center (CDEC) gages. Precipitation percentages by region from the CDEC gages are shown in a table at the end of this document.

CoCoRaHS Update

February 2013 continues California's fifth year with CoCoRaHS – the Community Collaborative Rain, Hail and Snow Network. This group uses citizen volunteers to record rain, hail and snow data. The users enter the data online at the CoCoRaHS web site. The web site provides the opportunity to see spatial detail of rain and snow patterns. A map from February 9, 2014 is shown at the end of the document. As of the end of February, California has 1109 volunteers signed up spanning 54 of California's 58 counties. The counties without volunteers are Alpine, Colusa, Glenn, and Modoc. The counties with the most volunteers at the end of February are San Diego and Sonoma with 100 volunteers each. For the month of February, 12,505 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in February was in Nevada County where 10.84 inches was recorded on 02/9/2013. There were 53 snowfall reports recorded with the largest being 16 inches in Nevada County. The largest total depth of snow reported in February was 30 inches in Placer County. Two hail reports were submitted in February in Butte (1) and San Diego (1) Counties. The largest stone size reported was 1/4" sized. To join CoCoRaHS or find more information, please visit http://www.cocorahs.org.

Snowpack and Water Supply Conditions

At the end of February the Northern region snowpack held 4 inches of snow water equivalent (SWE) which is 15% of the April 1st average and 17% of the average for the date. The Central region SWE was reported to be 8 inches which is 28% of the April 1st average and 32% of the average for the date. The Southern region SWE was reported to be 6 inches which is 22% of the April 1st average and 26% of the average for the date. The Water Supply Index (WSI) for WY2013 for the Sacramento Basin fell into the dry category and the San Joaquin fell into the critical category. The median forecast for the WSI for the Sacramento and San Joaquin Basins is critical category. More information can be found at http://cdec.water.ca.gov/water_supply.html. A historical listing of water year categories for both basins can be found at http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST.

Extreme Precipitation Monitoring Network

The National Oceanographic and Atmospheric Administration (NOAA) Earth System Research Laboratory (ESRL), Scripps Institute of Oceanography, and the California Department of Water Resources have been working on the installation of new observing equipment to monitor characteristics of extreme precipitation events associated with atmospheric rivers. Initial data is starting to flow from this network. A short duration atmospheric river event passed through parts of northern California between the 9th and 10th of February. Data can be viewed on the NOAA ESRL website: http://hmt.noaa.gov and will be available later this year on the California Data Exchange Center.

Drought Monitor and Seasonal Outlook

The maps for California for January 28, 2014 and February 25, 2014 are shown below. The Drought Monitor maps can be found on the National Drought Mitigation Center's (NDMC) website http://drought.unl.edu/dm/. These maps are largely a reflection of precipitation and soil moisture deficit estimates. As of the February 25th depiction, 26.21% of California is depicted in the D4 or exceptional drought category, 47.62% of California is depicted in the D3 or extreme drought category, 16.99% of California is depicted in D2 or severe drought category, 3.74% of California is depicted in D1 or moderate drought category. An additional 5.44% of the state is depicted as D0 or abnormally dry. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for March through May from NOAA depicts California in persisting or developing drought throughout the state. This forecast is based primarily on climatology and forecast models. Maps and information can be found at http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html. Updates are provided twice per month.

For more information on water conditions in California, visit http://www.water.ca.gov/waterconditions/. A table showing end-of-February reservoir storage by hydrologic region is shown at the end of this document.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) is currently in neutral conditions. Equatorial sea surface temperature anomalies for the tropical Pacific have been mostly negative with values of -0.4°C in the Niño 3.4 at the end of February. The December through February 3-month running mean of the Ocean Niño Index (ONI) is -0.7. Five consecutive ONI values need to be below the threshold o f -0.5 for conditions to be classified as a La Niña event (five consecutive values above the 0.5 threshold need to be observed for classification as an El Niño event). Most forecast models have the tropical sea surface transitioning to El Nino conditions by the latter part of the calendar year. More information can be found at the Climate Prediction Center's web site: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ Updates are posted weekly. The latest three month outlook (March through May) from NOAA indicates a higher probability for above normal temperatures for the State. For precipitation, a higher probability of below normal conditions is forecast for most of the State with equal chances of above or below normal precipitation in the northeastern corner. Outlook plots and discussions can be fount at http://www.wrcc.dri.edu/longrang/. General weather information of interest can be found at http://www.noaawatch.gov/. For anomaly information please see http://www.wrcc.dri.edu/anom/cal_anom.html.

Agricultural Data

February 2014 saw harvests, tree blooms, and field preparations. Dry conditions forced irrigation for some crops during the month. Irrigated wheat and oat crops benefitted from the unseasonably warm temperatures while dry-land crops suffered from ongoing drought conditions. Citrus harvests continued with frost damaged fruit graded out. Almond orchards went through their bloom cycle during the month while winter pruning and other orchard maintenance activities occurred in walnut and pistachio orchards. Broccoli, cabbage, carrots, chard, collard greens, cauliflower and kale were grown and harvested. Bed preparations continued for crops such as melons, squash, tomatoes, and peppers. Range conditions were reported from poor to fair and supplemental feeding continued. Bees actively worked the almond and early fruit blooms. For further crop information see http://www.nass.usda.gov/index.asp.

Other Climate Summaries

California Climate Tracker (new product of Western Region Climate Center)
Golden Gate Weather Service Climate Summary
NOAA Monthly State of the Climate Report

Statewide Extremes (CDEC)

High Temperature – 96°F (Buttercup, Colorado River Desert)
Low Temperature – -22°F (Casa Vieja Meadows, Tulare)
High Precipitation – 21.34 inches (Lagunitas Lake, San Francisco Bay)
Low Precipitation – 0.0 inches (Twentynine Palms, Colorado River Desert)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 79.0^{0}F (UC San Luis, Imperial County)
Low Average Minimum Temperature – 22.9^{0}F (Big Bear Lake, San Bernardino County)
High Precipitation – 12.42 inches (Windsor, Sonoma County)*
Low Precipitation – 0 inches (15 stations)
*Sometimes irrigation water from sprinklers gets counted as precipitation if the gage is not covered.

Statewide Precipitation Statistics

Hydrologic Region	Region Weight	Basin Reporting			Stations Reporting			% of Historic Average	
		Basins	Feb	Oct-Feb	Stations	Feb	Oct-Feb	Feb	Oct-Feb
North Coast	0.27	5	5	5	17	11	11	139%	40%
SF Bay	0.03	2	2	2	6	4	4	167%	48%
Central Coast	0.06	3	3	3	11	6	5	123%	44%
South Coast	0.06	3	3	3	14	9	9	75.8%	40%
Sacramento River	0.26	5	5	5	41	34	33	144%	45%
San Joaquin River	0.12	6	6	6	24	20	18	107%	42%
Tulare Lake	0.07	5	5	5	28	26	26	79.9%	39%
North Lahontan	0.04	3	3	3	13	12	12	129%	52%
South Lahontan	0.06	3	3	3	15	12	11	57.8%	40%
Colorado River	0.03	1	1	1	6	5	5	18.2%	43%
Statewide Weighted Average	1	36	36	36	175	139	134	120%	42.5%

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

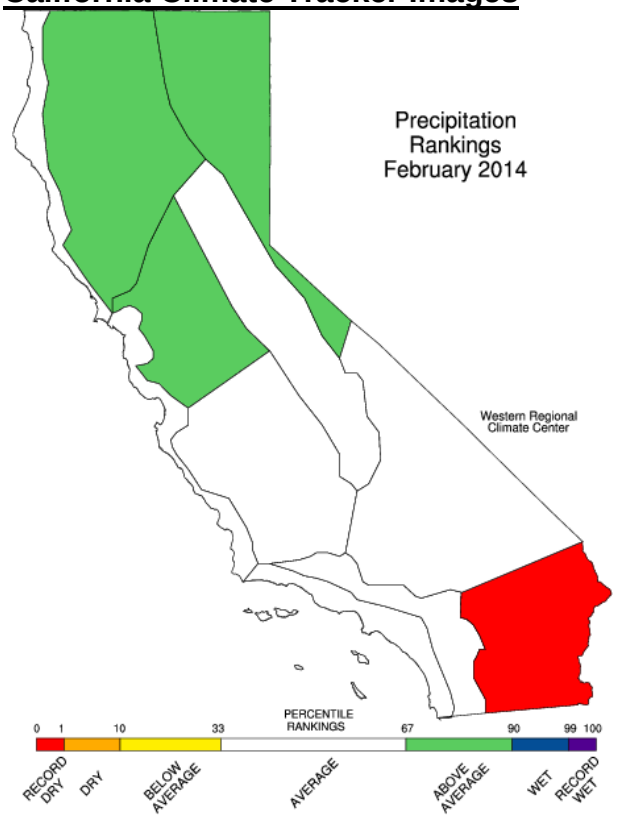
Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	19	23.5	42.6	66.9
SF Bay	9	35.2	50.5	68.2
Central Coast	10	30.4	51.5	79.2
South Coast	39	34.4	55.4	83.8
Sacramento	75	22.5	42.3	66.8
San Joaquin	46	20.1	41.2	65.3
Tulare Lake	18	12.3	35.1	59.3
North Lahontan	26	7.3	33.7	54.6
South Lahontan	13	12.0	40.4	66.4
Colorado River Desert	6	34.7	61.9	88.7
Statewide Weighted Average	261	22.5	43.5	68.1

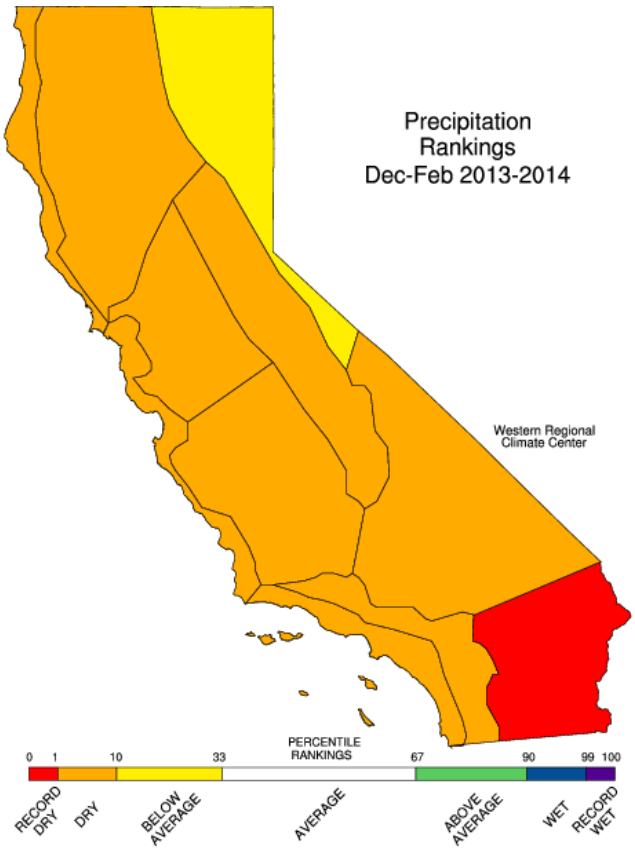
End-of-February Reservoir Storage by Hydrologic Region

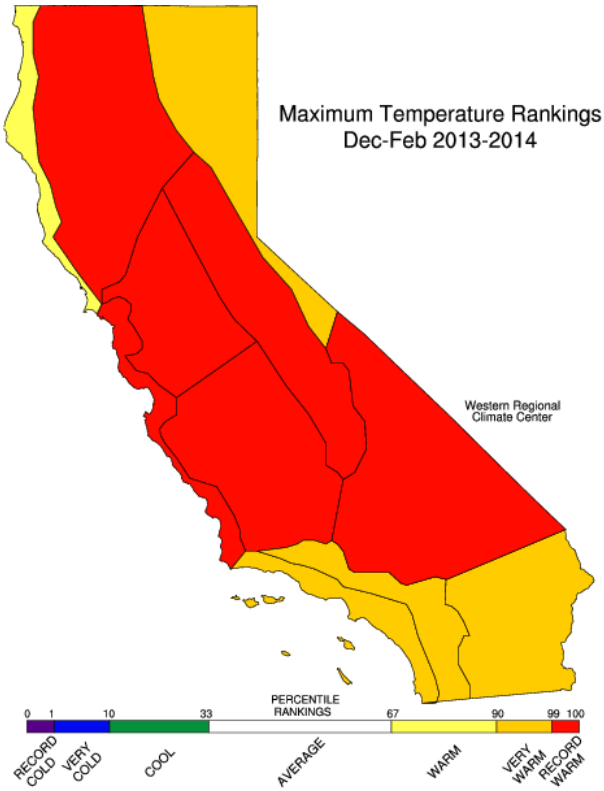
Storage in Thousand Acre-Feet (taf)

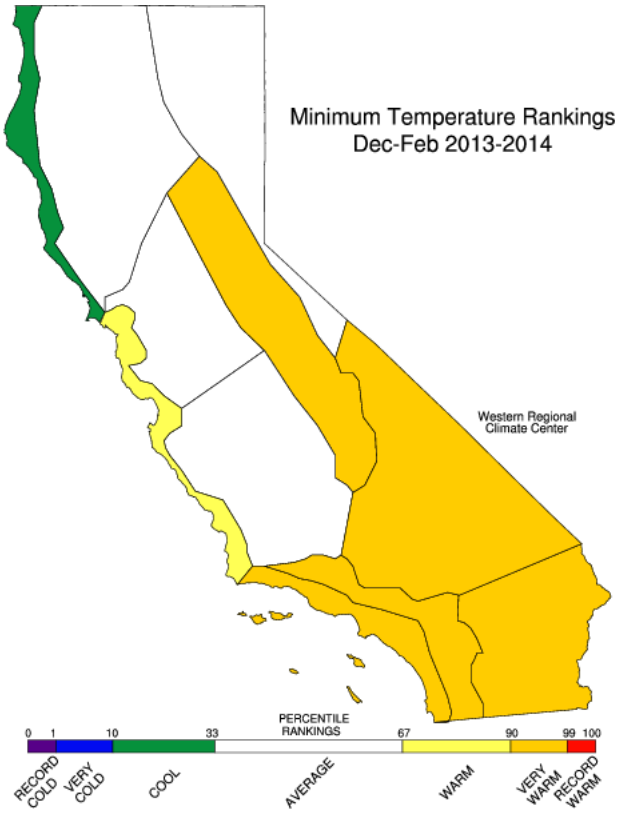
End-of-February Reservoir Storage	Number of Reservoirs	Average Storage (taf)	2014 Storage (taf)	% of Average
North Coast	6	2224	1,431	64%
San Francisco Bay	17	505	394	78%
Central Coast	6	656	203	31%
South Coast	29	1,447	1,137	79%
Sacramento	43	11,244	7,464	66%
San Joaquin	34	7,211	4,701	65%
Tulare	6	840	357	43%
North Lahontan	5	526	267	51%
South Lahontan	8	267	241	90%
Total	154	24,924	16,199	65%

California Climate Tracker Images






Maximum Temperature Rankings
Dec-Feb 2013-2014
Western Regional
Climate Center
PERCENTILE
RANKINGS
0 1 10 33 67 90 99 100
RECORD COLD
VERY COLD
COOL
AVERAGE
WARM
VERY WARM
RECORD WARM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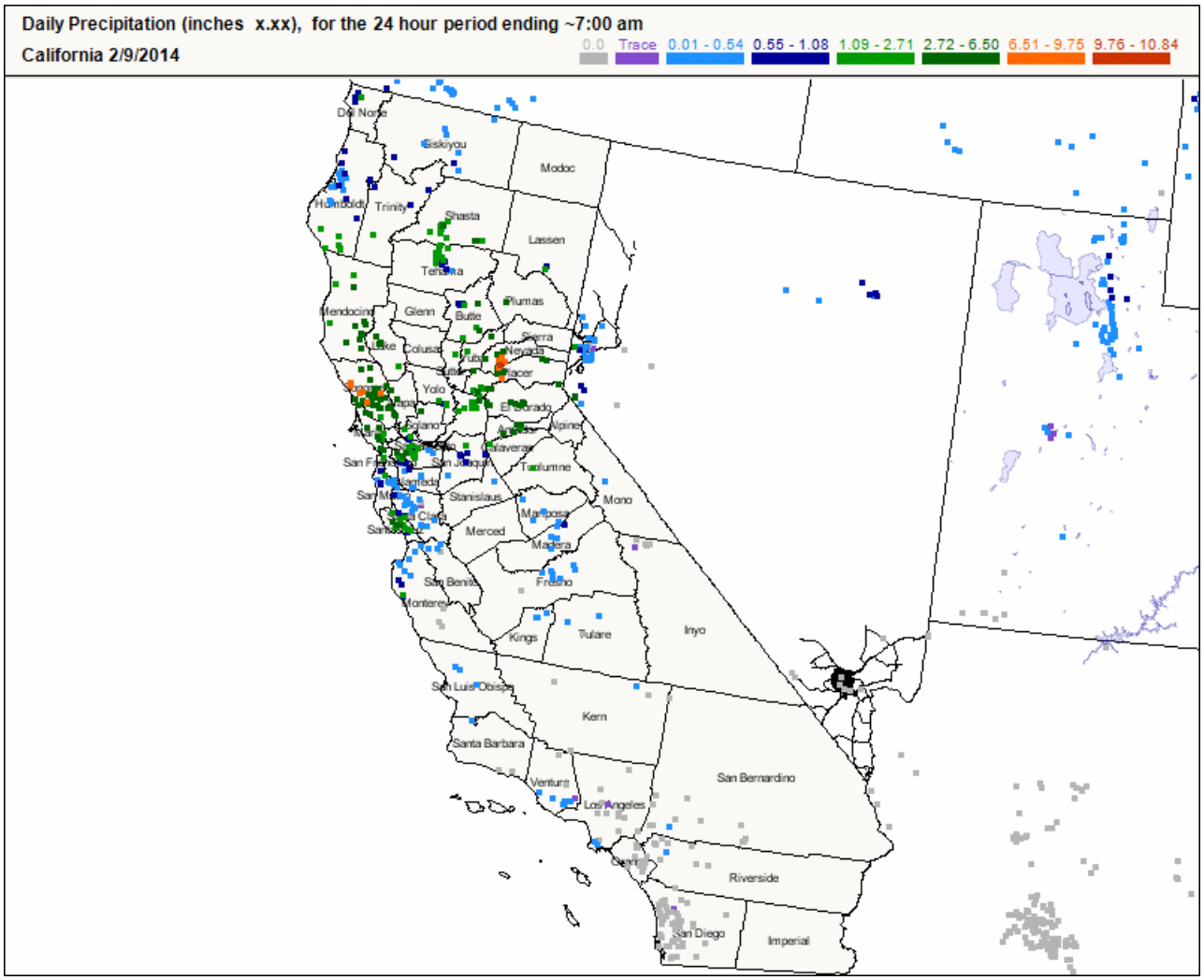
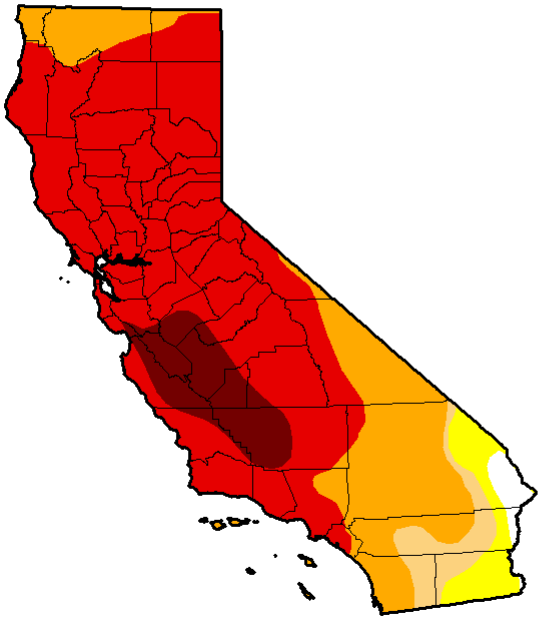
CoCoRaHS Map



U.S. Drought Monitor
California



January 28, 2014

(Released Thursday, Jan. 30, 2014)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	1.43	98.57	94.18	89.91	67.13	8.77
Last Week 1/21/2014	1.43	98.57	94.18	89.91	62.71	0.00
3 Months Ago 10/29/2013	2.66	97.34	95.98	84.12	11.36	0.00
Start of Calendar Year 12/31/2013	2.61	97.39	94.25	87.53	27.59	0.00
Start of Water Year 10/1/2013	2.63	97.37	95.95	84.12	11.36	0.00
One Year Ago 1/29/2013	34.20	65.80	47.18	21.57	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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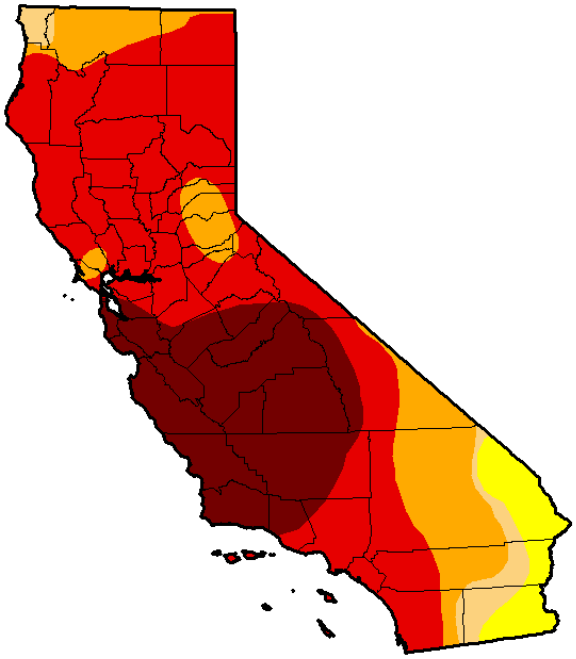
http://droughtmonitor.unl.edu/

U.S. Drought Monitor
California



February 25, 2014

(Released Thursday, Feb. 27, 2014)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	94.56	90.82	73.83	26.21
Last Week 2/18/2014	0.00	100.00	94.54	90.82	68.30	14.62
3 Months Ago 11/26/2013	2.61	97.39	94.15	82.53	27.59	0.00
Start of Calendar Year 12/31/2013	2.61	97.39	94.25	87.53	27.59	0.00
Start of Water Year 10/1/2013	2.63	97.37	95.95	84.12	11.36	0.00
One Year Ago 2/26/2013	0.02	99.98	47.13	26.96	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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